

Docket No.: 2004P00851

MAIL STOP: APPEAL BRIEF-PATENTS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Before the Board of Patent Appeals and Interferences

Applic. No.	:	10/587,699	Confirmation No.: 3533
Inventor	:	Ulrich Bauch, et al.	
Filed	:	July 27, 2006	
Title	:	High-Voltage Outdoor Bushing Arrangement	
TC/A.U.	:	2832	
Examiner	:	Marina Fishman	
Customer No.	:	24131	

Hon. Commissioner for Patents

Alexandria, VA 22313-1450

BRIEF ON APPEAL

Sir:

This is an appeal from the final rejection in the Office action dated November 24, 2008, finally rejecting claims 9, 10, 12 – 15 and 17 - 22.

Appellants submit this *Brief on Appeal* including payment in the amount of \$540.00 to cover the fee for filing the *Brief on Appeal*.

Real Party in Interest:

This application is assigned to Siemens Aktiengesellschaft of Germany. The assignment will be submitted for recordation upon the termination of this appeal.

Related Appeals and Interferences:

No related appeals or interference proceedings are currently pending which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

Status of Claims:

Claims 9, 10, 12 – 15 and 17 - 22 are rejected and are under appeal. Claims 1 – 8, 11 and 16 are canceled.

Status of Amendments:

No claims were amended after the final Office action.

Summary of the Claimed Subject Matter:

The subject matter of each independent claim is described in the specification of the instant application. Examples explaining the subject matter defined in each of the independent claims, referring to the specification by page and line numbers, and to the drawings, are given below.

Independent claim 9:

A high-voltage outdoor bushing configuration [1 of Fig. 1; pg. 1, lines 5 – 6], comprising:

an axis [3 of Figs. 1 and 2] extending through the outdoor bushing configuration [1 of Fig. 1] [pg. 6, lines 16-17];

an electrically insulating casing [6 of Fig. 1; pg. 6, lines 19-25];

a switch-disconnector module [pg. 1, line 7] having an electrically conductive housing [2 of Fig. 1; pg. 6, lines 10-11], said electrically conductive housing being substantially cylindrical and extending coaxially around said axis [2 of Fig. 1; pg. 6, lines 15-16];

a phase conductor extended along said axis [7, 8 of Fig. 1; pg. 6, lines 25-31] and to be interrupted by an isolating gap [11 of Fig. 1; pg. 7, lines 8-11] into a first section and a second section [7, 8 of Fig. 1]; and

a switching piece or an element of a multi-part switching piece [13 of Fig. 1] to be moved at an angle relative to said axis [pg. 7, lines 22-24], said switching piece being driven by a shaft [15 of Figs. 1 and 2] passing through said substantially cylindrical electrically conductive housing [2 of Fig. 1] [pg. 7, lines 24-26].

Independent claim 17:

A high-voltage outdoor bushing configuration [1 of Fig. 1; pg. 1, lines 5 – 6], comprising:

an axis [3 of Figs. 1 and 2] extending through the outdoor bushing configuration [1 of Fig. 1] [pg. 6, lines 16-17];

an electrically insulating casing [6 of Fig. 1; pg. 6, lines 19-25];

a switch-disconnector module [pg. 1, line 7] having an electrically conductive housing [2 of Fig. 1; pg. 6, lines 10-11], said electrically conductive housing being substantially cylindrical [2 of Fig. 1; pg. 6, lines 15-16] and including a substantially cylindrical outer wall [2 of Fig. 1] [pg. 3, lines 10-12];

a phase conductor extending along said axis [7, 8 of Fig. 1; pg. 6, lines 25-31] and interrupted by an isolating gap [11 of Fig. 1; pg. 7, lines 8-11] into a first section and a second section [7, 8 of Fig. 1]; and

a switching piece or an element of a multi-part switching piece [13 of Fig. 1] to be moved at an angle relative to said axis [pg. 7, lines 22-24], said switching piece being driven by a shaft [15 of Figs. 1 and 2] passing through the substantially cylindrical_outer wall of said electrically conductive housing [2 of Fig. 1] [pg. 7, lines 24-26].

Grounds of Rejection to be Reviewed on Appeal

1. Whether or not claims 9, 10, 12 – 15 and 17 - 22 are obvious over Piazza et al. (U.S. 6,784,392) in view of Cronin et al. (U.S. 4,300,028) under 35 U.S.C. § 103.

Argument:

I. Whether or not claims 9, 10, 12 – 15 and 17 - 22 are obvious over Piazza et al. (U.S. 6,784,392) in view of Cronin et al. (U.S. 4,300,028) under 35 U.S.C. § 103.

In item 3 of the final Office Action dated November 24, 2008 (the “final Office Action”), claims 9, 10, 12 – 15 and 17 - 22 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over U. S. Patent No. 6,784,392 to Piazza et al (“PIAZZA”) in view of U. S. Patent No. 4,300,028 to Cronin et al (“CRONIN”).

Appellants respectfully traverse the above rejections.

A. The modification of the PIAZZA reference suggested in the Office Action would impermissibly destroy the teachings of that reference and thus cannot be applied against Appellants’ independent claims 9 and 17.

First, Appellants’ independent claims 9 and 17 recite, among other limitations:

a switch-disconnector module having an electrically conductive housing, said electrically conductive housing being substantially cylindrical . . . [emphasis added by Appellants]

At least one advantage of Appellants’ particularly claimed switch-disconnector module having a substantially cylindrical electrically conductive housing is disclosed in the specification of the instant application, for example, on page 5 of the instant application, lines 12 – 20, which states:

It is advantageously also possible to provide for the shaft to pass through an outer wall of the housing in a cylindrical area of the housing.

Arrangement of the shaft in the cylindrical area of the encapsulating housing allows the drive movement to be introduced into the encapsulating housing relatively centrally. The isolating switch or else

the grounding switch can then be arranged around this introduction point..
[emphasis added by Appellants]

As such, Appellants' claims require, among other limitations, a switch-disconnector module having a substantially cylindrical electrically conductive housing.

As acknowledged on page 3 of the final Office Action, the PIAZZA reference, does not teach or suggest a conductive housing being substantially cylindrical and extending coaxially around an axis. Rather, page 3 of the final Office Action goes on to allege that it would have been obvious to use the substantially cylindrical switch-disconnector housing of the CRONIN reference in PIAZZA "so as to make manufacturing easier".

Appellants respectfully disagree.

Prior art references cannot be modified in such a way that the proposed modification renders the prior art unsatisfactory for its intended purpose. This prohibition is set forth in M.P.E.P. § 2143.01(V), which states, in part:

V. THE PROPOSED MODIFICATION CANNOT RENDER THE PRIOR ART UNSATISFACTORY FOR ITS INTENDED PURPOSE

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.

Similarly, prior art references cannot be modified in such a way that the proposed modification changes the principle of operation of a reference. This is set forth in M.P.E.P. § 2143.01(VI), which states, in part:

VI. THE PROPOSED MODIFICATION CANNOT CHANGE THE PRINCIPLE OF OPERATION OF A REFERENCE

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.

Contrary to the prohibitions of M.P.E.P. § 2143.01 (V) and (VI), modifying the device of the PIAZZA reference to include a substantially cylindrical switch-disconnector housing, as required by Appellants' claims, would both impermissibly change the principle of operation of the PIAZZA device and render the device of PIAZZA unsatisfactory for its intended purpose.

In particular, in contrast to Appellants' claimed invention, the PIAZZA reference discloses a gas-insulated switchgear device including a substantially spheroidal enclosure 99. See, for example, col. 3 of PIAZZA, lines 19 – 25, which states:

In the device according to the invention, a first disconnection unit 100 is used between the input bushing 40 and the enclosure 1, at the base of the bushing 40 itself. As shown in detail in FIGS. 3 and 4, the disconnection unit 100 comprises an enclosure 99 which has a substantially spheroidal central portion and two mutually opposite ends 97 and 98 which are structurally connected to the enclosure 1 and to the first bushing 40, respectively. [emphasis added by Appellants]

In fact, PIAZZA specifically teaches that the spheroidal enclosure 99 of PIAZZA is required to ensure a specific principal of operation of the PIAZZA device and to ensure that the PIAZZA device operates satisfactorily for its intended purpose.

See, for example, col. 3 of PIAZZA, line 61 – col. 4, line 2, which states:

Another advantage of this solution consists of the fact that the disconnection unit 100, being arranged inside a containment enclosure, is in a position in which it is protected against atmospheric agents, thus allowing to reduce the necessary maintenance interventions;

furthermore, the substantially spheroidal shape of the enclosure 99 allows to optimize the distribution of the electric field inside said disconnection unit 100, without requiring cumbersome constructive elements. [emphasis added by Appellants]

Thus, the PIAZZA reference specifically teaches that switch-disconnector of PIAZZA includes a substantially spheroidal shape of the enclosure to optimize the distribution of the electric field inside the disconnection unit 100 of PIAZZA.

Modifying the teachings of PIAZZA to replace the substantially spheroidal enclosure of PIAZZA with a substantially cylindrical enclosure (required by Appellants' claims) would, in the absence of cumbersome constructive elements, eliminate the desired optimization in PIAZZA of the distribution of the electric field inside the disconnection unit, which PIAZZA teaches requires a spheroidal design. Thus, the modification of PIAZZA proposed on page 3 of the final Office Action would impermissibly alter the operation of the device of PIAZZA and render PIAZZA unsatisfactory for its intended purpose.

In view of the foregoing, pursuant to M.P.E.P. §§ 2143.01(V) and (VI),, the teachings of the PIAZZA reference cannot be modified, by CRONIN or by any other reference, to change the shape of the switch-disconnector enclosure from spheroidal, as taught in PIAZZA, to substantially cylindrical, as required by Appellants' claims.

At the very least, it must be acknowledged that PIAZZA clearly teaches away from any modification of the spheroidal shape of the enclosure of the PIAZZA reference.

For the foregoing reasons, among others, Appellants' claims are believed to be unobvious over any permissible combination of the PIAZZA reference with the CRONIN reference, or any other reference.

B. **The teachings of the PIAZZA and CRONIN references do not teach or suggest, among other limitations of Appellants' independent claims 9 and 17, Appellants' particularly claimed outdoor bushing configuration arranged on an axis.**

Appellants' independent claims 9 and 17 further require, among other limitations, an axis extending through the outdoor bushing configuration. In particular, Appellants' claims 9 and 17 recite, among other limitations:

a phase conductor extended along said axis and to be interrupted by an isolating gap into a first section and a second section; [emphasis added by Appellants]

As such, Appellants' independent claims clearly require, among other things, a phase conductor interrupted by an isolating gap extending along an axis through the same outdoor bushing configuration that includes the switch-disconnector having a substantially cylindrical conductive housing.

As discussed in Section A, above, the teachings of the PIAZZA reference cannot be permissibly modified in combination with any other reference in the way suggested on page 3 of the final Office Action, or in any other way, that would result in a teaching or suggestion of Appellants' claimed invention.

However, even if **PIAZZA** could be modified as suggested in the Office Action, arquendo, the combination of **PIAZZA** and **CRONIN** would still not teach or suggest all limitations of Appellants' claimed invention.

More particularly, page 3 of the final Office Action alleged, in part:

Regarding Claims 9 and 17, Piazza et al. disclose the instant claimed invention except for the conductive housing being substantially cylindrical and extending coaxially around the axis. Cronin et al. [Figure 1] disclose disconnector [43, 44] having substantially cylindrical housing. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a substantially cylindrical housing in Piazza et al. as suggested by Cronin et al. so as to make manufacturing easier.

Applicant respectfully disagrees with the above-quoted allegation made on page 3 of the final Office Action.

Neither the cited **PIAZZA** reference, nor the **CRONIN** reference, teaches or suggests, among other limitations of Appellants' claims, a phase conductor, interrupted by an isolating gap, extending along an axis through an outdoor bushing configuration that includes a switch-disconnector having a substantially cylindrical conductive housing, as required by Appellants claims.

In particular, as acknowledged on page 3 of the final Office Action, **PIAZZA** fails to teach or suggest, among other limitations of Applicants' claims, a conductive housing of a switch disconnector being substantially cylindrical and extending coaxially around the axis. Consequently, **PIAZZA** cannot possibly teach, suggest or motivate a person skilled in this art to align a phase conductor of the switch-

disconnector in the substantially cylindrical housing **on an axis through the outdoor bushing configuration.**

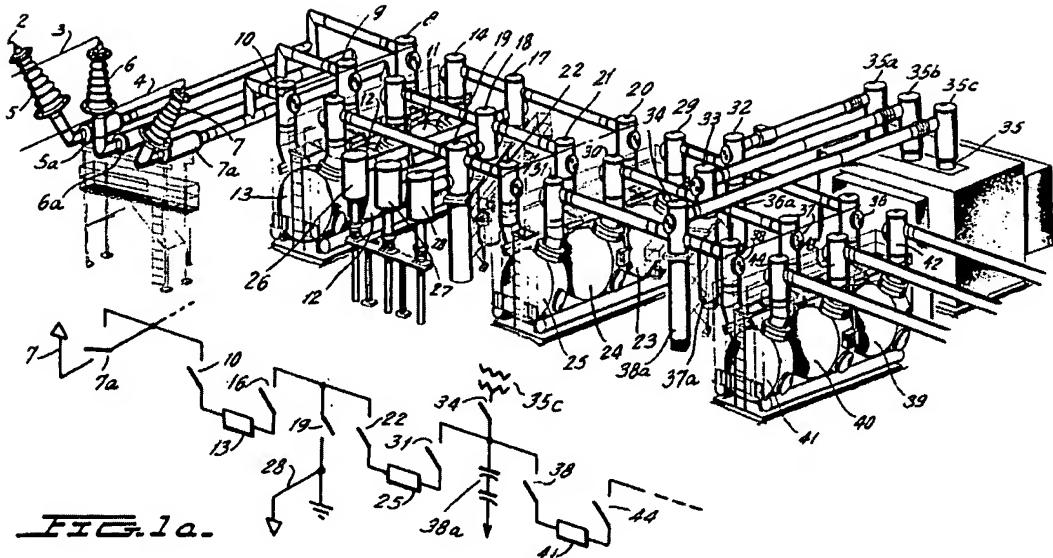
The **CRONIN** reference, cited in the **final Office Action** in combination with **PIAZZA** does not cure the above-discussed deficiencies of the **PIAZZA** reference. In particular, the **final Office Action** pointed to the disconnectors 43, 44 of Fig. 1 of **CRONIN**, as allegedly providing a person of ordinary skill in this art with a teaching of disconnectors having a substantially cylindrical housing, which would, allegedly, be obvious to substitute for the spheroidal enclosure of **PIAZZA**.

Appellants respectfully disagree.

Among other things, Appellants' claims require an axis passing through the claimed outdoor bushing configuration (i.e., which includes the substantially cylindrical housing). Appellants' claims additionally require, among other limitations, that the phase conductor including **an isolating gap extends along an axis through the particularly claimed outdoor bushing configuration.**

However, the disconnectors 43, 44 of **CRONIN** are not part of, nor are they associated with, **the bushings of CRONIN**. See, for example, Fig. 1 of **CRONIN**, reproduced herebelow for convenience.

FIG. 7. PRIOR ART



Thus, the disconnectors 43, 44 of CRONIN cannot teach or suggest, among other limitations of Appellants' claims, a phase conductor of on an axis through an outdoor bushing configuration that includes a substantially cylindrical switch-disconnector housing, as required by Appellants' claims. Put quite simply, no part of the disconnectors 43, 44 extend along an axis through an outdoor bushing configuration of CRONIN. Thus, the disconnectors 43, 44 of CRONIN, despite having a cylindrical shape, do not teach or suggest Appellants' claimed invention, even when taken in combination, arguendo, with PIAZZA.

Appellants note that Fig. 1 of CRONIN does show air-to-gas bushings 5, 6 and 7. However, these air-to-gas bushings 5, 6 and 7 of CRONIN are not assigned to the disconnectors 43, 44 of CRONIN. Instead, as disclosed in col. 2 of CRONIN, lines

26 – 32, the air-to-gas bushings 5, 6 and 7 of CRONIN are in communication with the horizontal disconnect switches 5a, 6a and 7a of Fig. 1 of CRONIN.

See, for example, col. 2 of CRONIN, lines 26 – 32, stating:

FIG. 1 shows a typical conventional three-phase gas-insulated substation. A typical prior art gas-insulated substation is described, for example, in U.S. Pat. No. 4,130,850 dated Dec. 19, 1978. **The three phase lines 2,3 and 4 enter the substation via air to-gas bushings 5,6 and 7 and horizontal disconnect switches 5a,6a and 7a.** [emphasis added by Appellants]

Thus, as can be seen from FIG. 1 of CRONIN, the axes extending through the bushings 5, 6, and 7 of CRONIN do not extend through the horizontal disconnect switches 5a, 6a and 7a of CRONIN, as required by Appellants' claims, but rather, run at angles relative to the axes running through the bushings 5, 6 and 7 of CRONIN. No other disconnector of CRONIN includes a phase conductor extending along an axis through the bushings 5, 6 and 7 of CRONIN.

As such, like the PIAZZA reference, the CRONIN reference fails to teach or suggest, among other limitations of Appellants' claims, Appellants' particularly claimed **phase conductor with an isolating gap, extending along an axis through the outdoor bushing configuration** including a substantially cylindrical switch-disconnector housing.

In fact, the CRONIN reference would teach away from Appellants' claimed invention by teachings that the phase conductor of the switch disconnector should not extend along an axis through the bushing, but rather, should extend horizontal to the bushings, as specifically taught in connection with the bushings 5, 6 and 7 of

CRONIN and switch disconnectors 5a, 6a and 7a of CRONIN. Additionally, the teaching in CRONIN, of providing a switch disconnector at an angle to the bushing, when combined with the teachings of PIAZZA, would destroy the teachings of PIAZZA.

For the foregoing reasons, among others, the combination of PIAZZA and CRONIN fails to teach or suggest, and specifically teaches away from, Appellants' claimed invention.

C. The teachings of the PIAZZA and CRONIN references do not teach or suggest, among other limitations of Appellants' claims, Appellants' particularly claimed housing arranged coaxially on an axis through the outdoor bushing configuration, as required by Appellants' claim 9.

Appellants claim 9 further recites, among other limitations:

a switch-disconnector module having an electrically conductive housing, said electrically conductive housing being substantially cylindrical and extending coaxially around said axis; [emphasis added by Appellants]

As such, among other limitations, Appellants' claim 9 requires the substantially cylindrical housing of the switch-disconnector module to extend coaxially around the axis through the outdoor bushing configuration.

As discussed in Section A, above, PIAZZA cannot be modified in the way suggested on page 3 of the Office Action to teach Appellants' claimed invention. However, even if PIAZZA could be modified as suggested in the Office Action, arquendo, the combination of PIAZZA and CRONIN would still not teach or suggest Appellants' invention of claim 9.

As can be seen from the remarks made in Section B, above, neither the **PIAZZA** reference, nor the **CRONIN** reference, teaches or suggests, among other limitations of Appellants' claims, a substantially cylindrical switch-disconnector module housing extending coaxially around the axis through the outdoor bushing configuration, as required by Appellants' claims.

PIAZZA fails to teach or suggest the conductive housing of a switch disconnector being substantially cylindrical. Consequently, **PIAZZA** cannot possibly teach or suggest the phase conductor of the switch-disconnector in the substantially cylindrical housing being on an axis through the outdoor bushing configuration. As can be seen from FIG. 1 of **CRONIN**, the axes extending through the bushings 5, 6, and 7 of **CRONIN** do not extend through the horizontal disconnect switches 5a, 6a and 7a of **CRONIN**, but rather, run at angles relative to the axes running through the bushings 5, 6 and 7 of **CRONIN**. As such, in contrast to Appellants' invention of claim 9, the **CRONIN** reference teaches that an axis through the switch disconnector housing runs at an angle to an axis through the bushing.

For the foregoing reasons, among others, the combination of **PIAZZA** and **CRONIN** fails to teach or suggest, and specifically teaches away from, Appellants' invention of claim 9.

D. The teachings of the **PIAZZA** and **CRONIN** references do not teach or suggest, among other limitations of Appellants' claims, Appellants' particularly claimed shaft passing through the substantially cylindrical outer wall of the electrically conductive housing, as required by Appellants' claim 17.

Appellants independent claim 17 further recites, among other limitations:

a switching piece or an element of a multi-part switching piece to be moved at an angle relative to said axis, said switching piece being driven by a shaft passing through the substantially cylindrical outer wall of said electrically conductive housing. [emphasis added by Appellants]

As such, among other limitations, Appellants' claim 17 requires, among other limitations, a shaft passing through the substantially cylindrical outer wall of the electrically conductive switch-disconnector housing.

As discussed in Section A, above, PIAZZA cannot be modified in the way suggested on page 3 of the Office Action to teach Appellants' claimed invention. However, even if PIAZZA could be modified as suggested in the Office Action, arguendo, the combination of PIAZZA and CRONIN would still not teach or suggest Appellants' invention of claim 17.

Page 3 of the final Office Action alleged, in part, "[i]t would have been obvious to extend the shaft portion beyond the outer wall [flange], so as to be accessible from outside the housing so that the shaft can be coupled to a motor 90°". Thus, the final Office Action acknowledges that the PIAZZA and CRONIN references do not disclose a shaft passing outside of a cylindrical outer wall of an electrically conductive switch-disconnector housing.

However, the passage of the shaft outside a cylindrical outer wall of an electrically conductive switch-disconnector housing, as required by Appellants' claim 17; would also not be obvious over the disclosures of the PIAZZA and CRONIN references. In particular, PIAZZA fails to teach or suggest the conductive

housing of a switch disconnector being substantially cylindrical. Consequently, PIAZZA cannot possibly teach, suggest or motivate, among other limitations of Appellants' claims, a shaft passing through the substantially cylindrical outer wall of the electrically conductive switch-disconnector housing, as required by Appellants' claim 17.

Similarly, the CRONIN reference, cited in the final Office Action in combination with PIAZZA, also fails to teach or suggest, among other limitations of Appellants' claims, a shaft passing through a substantially cylindrical outer wall of the electrically conductive switch-disconnector housing, as required by Appellants' claim 17. See, for example, Fig. 1 of CRONIN.

As such, neither the PIAZZA reference, nor the CRONIN reference, teaches, suggests or motivates a person of skill in this art to provide, among other limitations of Appellants' claims, a shaft passing through the substantially cylindrical outer wall of the electrically conductive switch-disconnector housing.

For the foregoing reasons, among others, the combination of PIAZZA and CRONIN fails to teach or suggest, and specifically teaches away from, Appellants' invention of claim 17.

V. Conclusion.

For the foregoing reasons, among others, Appellants' claims are believed to be patentable over the **PIAZZA** and **CRONIN** references, whether taken alone, or in any permissible combination.

The honorable Board is therefore respectfully urged to reverse the final rejection of the Primary Examiner.

If an extension of time is required for this submission, petition for extension is herewith made. Any additional fees due should be charged to Deposit Account No. 12-1099 of Lerner Greenberg Stemer LLP.

Respectfully submitted,

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Claims Appendix:

9. A high-voltage outdoor bushing configuration, comprising:

an axis extending through the outdoor bushing configuration;

an electrically insulating casing;

a switch-disconnector module having an electrically conductive housing, said electrically conductive housing being substantially cylindrical and extending coaxially around said axis;

a phase conductor extended along said axis and to be interrupted by an isolating gap into a first section and a second section; and

a switching piece or an element of a multi-part switching piece to be moved at an angle relative to said axis, said switching piece being driven by a shaft passing through said substantially cylindrical electrically conductive housing.

10. The high-voltage outdoor bushing configuration according to claim 9, which further comprises a grounding switch disposed within said electrically conductive housing, said grounding switch grounding at least one of said sections by continuation of a further movement of said switching piece.

12. The high-voltage outdoor bushing configuration according to claim 9, wherein said switching piece is a blade contact.

13. The high-voltage outdoor bushing configuration according to claim 9, wherein said switching piece is pin-shaped.

14. The high-voltage outdoor bushing configuration according to claim 9, which further comprises pillar supports holding said isolating gap in said housing.

15. The high-voltage outdoor bushing configuration according to claim 9, wherein said switching piece is movable on a curved path.

17. A high-voltage outdoor bushing configuration, comprising:

an axis extending through the outdoor bushing configuration;

an electrically insulating casing;

a switch-disconnector module having an electrically conductive housing, said electrically conductive housing being substantially cylindrical and including a substantially cylindrical outer wall;

a phase conductor extending along said axis and interrupted by an isolating gap into a first section and a second section; and

a switching piece or an element of a multi-part switching piece to be moved at an angle relative to said axis, said switching piece being driven by a shaft passing through the substantially cylindrical outer wall of said electrically conductive housing.

18. The high-voltage outdoor bushing configuration according to claim 17, which further comprises a grounding switch disposed within said electrically conductive housing, said grounding switch grounding at least one of said sections by continuation of a further movement of said switching piece.

19. The high-voltage outdoor bushing configuration according to claim 17, wherein said switching piece is a blade contact.

20. The high-voltage outdoor bushing configuration according to claim 17, wherein said switching piece is pin-shaped.

21. The high-voltage outdoor bushing configuration according to claim 17, which further comprises pillar supports holding said isolating gap in said housing.

22. The high-voltage outdoor bushing configuration according to claim 17, wherein said switching piece is movable on a curved path.

Evidence Appendix:

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or any other evidence has been entered by the Examiner and relied upon by appellant in the appeal.

Related Proceedings Appendix:

No prior or pending appeals, interferences or judicial proceedings are in existence which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this appeal. Accordingly, no copies of decisions rendered by a court or the Board are available.